

California Bay-Delta Program

Drinking Water Quality Program Multi-Year Program Plan (Years 5 – 8)

Implementing Agencies:

State Water Resources Control Board
Regional Water Quality Control Boards
Department of Health Services
United States Environmental Protection Agency

July 2004



Goals, Objectives and Targets

Goals and Objectives:

The Drinking Water Quality Program (DWQP) goal is to advance efforts to provide safe, reliable, and affordable drinking water to the millions of Californians who rely on waters from the Delta watershed through cost-effective continuous improvement to source water quality, water management, and treatment. The CALFED Program is committed to achieving continuous improvement in the quality of the waters of the Bay-Delta system with the goal of minimizing ecological, drinking water and other water quality problems. CALFED Agencies' target for providing safe, reliable, and affordable drinking water in a cost-effective way, is to achieve either: (a) average concentrations at Clifton Court Forebay and other southern and central Delta drinking water intakes of 50 µg/L bromide and 3.0 mg/L total organic carbon, or (b) an equivalent level of public health protection using a cost-effective combination of alternative source waters, source control and treatment technologies. Work is progressing on all of the Record of Decision commitments with emphasis on source water improvement and treatment technologies.

The Drinking Water Subcommittee (DWS) of the Bay-Delta Public Advisory Committee is helping to shape the strategy of the program. The DWS developed a framework for drinking water quality management -- "Equivalent Level of Public Health Protection Decision Tree" (ELPH diagram) -- as well as a Conceptual Framework descriptive document in 2002. A focused workshop to identify and prioritize actions for program implementation was held¹ and a process to develop a comprehensive strategic plan for the DWQP started in 2003. The primary tool for strategic planning has been an agency and stakeholder workgroup under the general direction of the DWS. As part of the strategic planning process, the DWS has developed a program goal and program objectives addressing source water quality, water management, treatment, affordability, cost-effectiveness, coordination and communication, and research. Some of the concepts, strategies, and actions identified in the strategic planning process have been included in this Program Plan but completion of the strategy recommendations and adoption of the Strategic Plan by the Authority is not expected in time for this year's program plan.

The water quality improvement accomplishments and activities of the program are grouped into five broad categories:

- **Source Improvement** – includes all actions to improve water quality upstream of water treatment plants including all actions classified as Delta Water Quality, Imported Water Quality, and Local Source Water Quality in the 03/04 Program Plan. This includes source control, conveyance, operations, storage, and source water exchange actions.
- **Treatment Options** – includes actions to advance the use of innovative water treatment methods at drinking water treatment plants.

¹ Using the "Nominal Group Technique."

- **Monitoring and Assessment** – includes actions to gather water quality data and evaluate trends and impacts.
- **Regional Planning** (Activities section only) - includes regional activities with benefits specific to a particular CALFED region.
- **Program Management** - includes implementation commitments, DWS support, coordination with the overall CALFED Program and other program areas, and other actions necessary for program implementation.
- **Potential Funding Programs** (Activities section only) – includes all identified potential funding sources for Program implementation.

Targets:

Page 65 of the CALFED Record of Decision (ROD) states the drinking water quality program’s general target is “continuously improving Delta water quality for all uses, including in-Delta environmental and agricultural uses” and its specific target is “providing safe, reliable, and affordable drinking water in a cost-effective way, [is] to achieve either: (a) average concentrations at Clifton Court Forebay and other southern and central Delta drinking water intakes of 50 µg/L bromide and 3.0 mg/L total organic carbon, or (b) an equivalent level of public health protection using a cost-effective combination of alternative source waters, source control and treatment technologies.” The CALFED Water Quality Program Plan (Appendix to the CALFED EIR/EIS, 2000) defines water quality targets as “A numeric or narrative water, sediment, or tissue value associated with a parameter of concern. Water quality targets are based on existing water quality, sediment, and tissue objectives recognized by the scientific community and regulatory authorities. In general, targets have been established to represent a threshold below which beneficial uses of water are not impaired. The target represents the goal toward which the Water Quality Program will strive; realizing targets may not be possible to reach in all cases.” In Appendix D² of the Water Quality Program Plan, there are several numeric targets listed for drinking water intakes:

| | |
|----------------------|---|
| Bromide | <50 µg/L (or an equivalent level of public health protection, based on a regulatory bromate standard of 5 µg/L and the CUWA ³ expert panel report) |
| Total Organic Carbon | < 3 mg/L (or an equivalent level of public health protection, based on a regulatory bromate standard of 5 µg/L and the CUWA ⁴ expert panel report) |
| Chloride | 250 mg/L, 150 mg/L (Same as D-1641 and the current Sacramento-San Joaquin Bay Delta Water Quality Control Plan) |
| Nutrients | 10 mg/L, no increase in nitrate levels |

² “Water Quality Targets for Parameters of Concern”

³ California Urban Water Agencies “Bay Delta Water Quality Criteria”, December 1996.

⁴ California Urban Water Agencies “Bay Delta Water Quality Criteria”, December 1996.

| | |
|------------------------|--|
| Total Dissolved Solids | < 220 mg/L (10-yr avg) (from SWP Water Service Contract, may be changed to a 6-month or 1 year avg target) < 440 mg/L (monthly avg) |
| Pathogens | No MCL standard; < 1 oocyst/100L for <i>Giardia</i> and <i>Cryptosporidium</i> |
| Turbidity | 0.5 or 1.0 NTU (in treated water); 50 NTU (target is to reduce current variability) |

The Drinking Water Subcommittee reviewed these targets and goals in Year 4 through a stakeholder forum and is convening an expert review panel in Year 5. The ROD milestones and projected expenditures for the Drinking Water Quality Program are being similarly reviewed and updated.

To assist in program implementation and future evaluation of progress towards targets and goals, the Drinking Water Subcommittee has initiated a strategic planning process, to build on its work in Years 2-3. The strategic planning process was started in October of 2003 and is scheduled for completion by December 2004. The plan is being developed by a workgroup consisting of implementing agency staff, CBDA staff, DWS representatives, and stakeholders. The strategic plan is intended to guide program implementation over the life of the CALFED Program, and will be revised periodically through adaptive management. It will consolidate the information in several planning documents previously developed for the program and may include new actions developed during the strategic planning process. It will include recommendations for processes to measure success including revised targets and milestones, performance measures, and reporting.

Accomplishments

Most program actions have taken place through competitive grants. Since the program's inception in August 2000, three proposal solicitations have occurred. The first of these was conducted by the DWQP with the participation of the implementing agencies.

2001 CALFED Drinking Water Quality Program Grants: The DWQP awarded grants for 13 projects totaling \$6.7 million. Emphasis in this first Proposal Solicitation Package (PSP) was on monitoring and assessment.

2002 SWRCB Grants: The State Water Resources Control Board (SWRCB), with the DWQP, awarded grants for 13 projects totaling \$7.2 million in Prop 13 nonpoint source funds. Seven of these projects are related to agriculture in the San Joaquin Valley.

2003 SWRCB Grants: The SWRCB is in the process of releasing \$31.5 million for drinking water quality source improvement projects, including development and assessment of best management practices for discharges from Delta islands, irrigated agricultural and urban sources.

The last two requests for proposals were conducted by the SWRCB with DWQP assistance. Program funding and implementation responsibility continue to shift from program staff to the implementing agencies.

The DWQP has been unable to meet the aggressive schedule in the ROD due primarily to a lack of resources. Additional staff is needed in both the CBDA and the implementing agencies to oversee and coordinate program actions. Restrictions on available funding have also resulted in uneven implementation of the program. For example in Years 3 and 4, nearly all of the available funding was for competitive nonpoint source pollution control grants. The program has had almost no funding for treatment technology, monitoring, or many other program commitments in the past two years.

Source Improvement

Completed Actions:

North Bay Aqueduct Alternative Intake Study: Evaluation of intake relocation was completed in 2003 (2001 DWQP grant). Cost for the selected relocation alternatives is \$150 to \$175 million.

North Bay Aqueduct Watershed Management: A watershed management evaluation of Barker Slough was completed.

Rock Slough and Old River Water Quality: Contra Costa Water District completed feasibility studies and environmental documentation.

Ongoing Actions:

North Bay Aqueduct Watershed Management: Recommended Best Management Practices (BMPs) are being implemented and results monitored. (Prop 204 and DWQP)

Best Management Practices for Agriculture: Twelve projects have been awarded to develop and implement agricultural Best Management Practices (BMPs) that reduce loads of drinking water constituents of concern. (DWQP and Prop 13)

Regional Desalination: Agricultural drainage water recycling using membrane technology by Panoche Drainage District started in Year 4. (DWQP, ERP, Prop 204). This partially satisfies the ROD commitment for a regional desalination project.

CVRWQCB Basin Plan Amendment (BPA) (salinity and boron): The draft BPA and TMDL have been circulated for public review. Two workshops were held in 2003. A hearing was held in early 2004, resulting in additional stakeholder meetings in 2004.

DWR Agricultural Drainage Program (salinity and selenium): Includes management and coordination, monitoring and evaluation, on-farm drainage reduction, treatment, integrated drainage management and environmental investigations. Since 2000, the program has funded 40 projects with a total investment of \$4.8 million from Prop 204. Projects are located in both the San Joaquin and Tulare basins. Reducing salinity in the San Joaquin River is an important component of the Delta Improvements Package.

Rock Slough and Old River Water Quality: Recommended projects were awarded and will begin in 2004. (DWR, Prop 13) These actions are included in the Delta Improvements Package.

Bay Area Water Quality and Supply Reliability Program: This program is evaluating cooperative projects among Bay Area water districts to meet their water supply reliability and drinking water quality objectives. Phase 1 evaluated overall Bay Area water quality, developed a list of potential projects and provided a qualitative evaluation of the ability of existing infrastructure to provide sufficient high quality water to meet the drinking water objectives in the ROD.

State Water Project Watershed Actions: Six projects to perform watershed assessments and implement watershed improvement actions have been awarded in watersheds draining into the California Aqueduct, other SWP conveyances and SWP reservoirs downstream of the Delta (DWQP, Watershed Program, Prop 13).

San Joaquin Valley / Southern California Water Quality Exchanges: Metropolitan Water District (MWD) has entered into two partnerships with San Joaquin Valley water agencies to explore water management opportunities to help resolve water supply and water quality management problems.

Operational Improvements/ Recirculation in the San Joaquin River: US Bureau of Reclamation and DWR completed modeling studies, which are undergoing management review. The reports will then be forwarded to the fisheries agencies for a preliminary fish and wildlife evaluation. This action is included in the Delta Improvements Package.

Treatment Options

Completed Actions:

Bromate Control by Carbon Dioxide Addition: Alameda County Water Agency completed studies to reduce bromate formation from ozone treatment of Delta water containing bromide. Bromate was reliably and cost effectively reduced to levels meeting the new disinfection byproducts standard.

Ongoing Actions:

Ultraviolet (UV) Light Disinfection: MWD is conducting studies integrating UV disinfection and other oxidants (DWQP). A consortium of Bay Area water agencies led by Contra Costa Water District is beginning a program investigating combinations of advanced treatment technologies applied to Delta Water. The primary objective is to aid utilities using Delta water in developing compliance strategies through modification of existing facilities, and installation of new treatment processes (EPA and AWWARF).

Ion Exchange for Organic Carbon Removal: The DWQP awarded a grant to Solano County Water Agency to investigate application of innovative ion exchange technology for organic carbon removal. Bench scale studies are under way to be followed by a pilot scale system.

Monitoring and Assessment

Completed Actions:

Real Time Monitoring and Management of Salinity in the San Joaquin River: The Regional Board, DWR, and Lawrence Berkeley National Laboratory in cooperation with the USGS and local water districts, implemented a real-time monitoring and modeling program for salinity in the San Joaquin River. Flow and salinity were monitored, and salt load and salt assimilative capacity were modeled, for three years through December 2002. (DWQP, DWR, Prop 204).

Ongoing Actions:

Sanitary Surveys: DWR completed the sanitary survey of the State Water Project (SWP) and its tributaries. DWR also monitors run-off into the California Aqueduct and the South Bay Aqueduct.

Continuous Analyzers: Continuous organic carbon analyzers have been installed at Hood and the Banks Pumping Plant. Data from these analyzers and other sensors is now compiled, analyzed, and reported in Water Quality Weekly Reports by the DWR Office of Water Quality. New projects initiated in FY 2003/2004 include an award to Santa Clara Valley Water District to purchase and install continuous real-time bromide and nutrient monitoring devices at Banks Pumping Plant and Vernalis (DWQP, DWR).

Coordinated Monitoring: The DWQP is working with existing monitoring programs and supporting complimentary efforts. 15 monitoring and assessment projects have been awarded for \$8 million.

Central Valley Drinking Water Policy: Monitoring and assessment is a major part of the work of the Central Valley Drinking Water Policy Work Group. The group is nearing completion on a study of monitoring data availability as a first step in gathering the data necessary for development of a Drinking Water Policy for the Delta and its tributaries.

Program Management

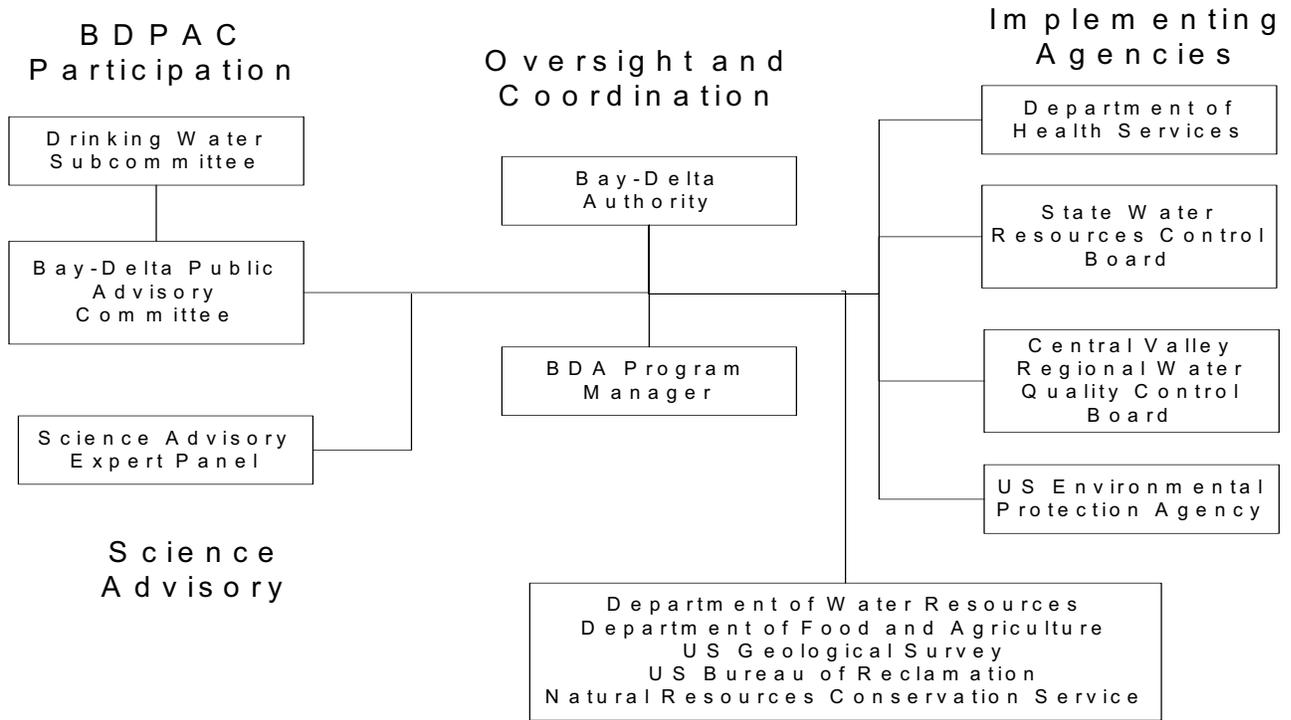
Completed Actions:

Drinking Water Quality Workshop: The DWQP and USEPA Region IX conducted a focused workshop July 29-31, 2003 to identify “the most important issues that must be addressed to meet the CALFED drinking water quality goals in a cost-effective and equitable manner”. The workshop identified 10 recommended actions that will be an important part of the program’s strategy for the future.

Ongoing Actions:

Strategic Plan: DWQP staff convened a workgroup to continue the efforts of the Drinking Water Subcommittee to develop a comprehensive strategic plan for the DWQP. The workgroup is making good progress towards its goal to complete this task by December 2004.

Program Structure



Participating Agencies

| Agency | Roles and Responsibilities |
|---|--|
| California Bay-Delta Authority | <ul style="list-style-type: none"> Oversight and coordination |
| Department of Health Services | <ul style="list-style-type: none"> State co-lead Management of treatment technology development, and health effects studies Grant funds manager |
| State Water Resources Control Board | <ul style="list-style-type: none"> State co-lead, Grant funds manager |
| Central Valley Regional Water Quality Control Board | <ul style="list-style-type: none"> Management of source protection efforts |
| U.S. Environmental Protection Agency | <ul style="list-style-type: none"> Federal lead Administration of Clean Water Act and Safe Drinking Water Act via state agencies |
| Department of Water Resources | <ul style="list-style-type: none"> Municipal water quality investigations SWP water quality monitoring Conveyance program |
| U.S. Bureau of Reclamation | <ul style="list-style-type: none"> San Joaquin Valley agriculture drainage program CVP water quality monitoring, Recirculation study |
| Department of Food and Agriculture | <ul style="list-style-type: none"> Conservation programs for agriculture |
| U.S. Geological Survey | <ul style="list-style-type: none"> Data and science assessments of water quality Contract research |
| Natural Resources Conservation Service | <ul style="list-style-type: none"> Resource conservation programs for agriculture |

Major Activities

The Delta Improvements Package (DIP) will be a focus of the program in Year 5 and beyond. The DIP is described briefly below and is comprised of a collection of actions. The drinking water quality actions that are part of DIP are spread throughout the different categories along with their more detailed descriptions. The primary drinking water quality goal of the DIP is reducing salinity at Delta drinking water intakes. A number of the DIP actions, although focused on drinking water quality improvement, are not under the purview of the DWQP. The DWQP will closely coordinate on all actions that affect drinking water quality.

Outside of the DIP, source improvement projects will continue to be a high priority for the DWQP in Years 5-8. Nearly all of the projects funded by the DWQP in Years 1-4 are in progress and will be completed in Years 5-8. Projects will be assessed for progress towards programmatic goals. The DWQP will work with the appropriate implementing agencies to leverage funding from Prop 50 Chapters 5 and 8 for implementation of source improvement projects in Delta watersheds and in local water sources.

Water utilities continue to look for assistance to address treatment technology needs associated with Delta water quality. Previously funded treatment studies will provide information needed to guide future funding. Treatment technology projects that address program goals will likely be funded through DHS Prop 50 grants from Chapter 4 but may also be funded from Chapters 3 and 6.

Monitoring and assessment are becoming increasingly important. Additional monitoring is needed to provide a complete picture of drinking water quality in the system as well as a consistent record over time. DWQP performance measures will be heavily dependent on data availability. Monitoring and assessment conducted in connection with grant funded projects helps but inevitably leaves significant information gaps. Consistent long term funding is needed to support this component of the program.

DHS and SWRCB, as major state implementing agencies of the CALFED DWQ Program, support the actions needed to achieve the CALFED drinking water quality goals and objectives. The funding needed to implement many of the actions is expected to come from the various Prop 50 grant programs under the jurisdiction of DHS and SWRCB. DHS has approximately \$430 million available to fund drinking water quality improvement projects statewide. While the Prop 50 grant programs address statewide water quality improvement and all proposed projects must compete for funding according to established criteria, it is anticipated that a significant portion of the Prop 50 funds will ultimately support projects directly related to CALFED drinking water quality goals and objectives. The funding will be available over a four-year period, from 2005 – 2009. Proposal solicitations will begin in 2004.

DHS and SWRCB have long supported water quality improvement projects in the CALFED solution area through their respective State Revolving Fund programs. To date, DHS has provided \$185 million to public water systems for infrastructure improvement statewide, with \$154 million going to projects in the CALFED solution area (83% of statewide project funding). In addition, \$430 million has been committed to specific drinking water quality improvement projects that are still in the planning stages, of which \$372 million is committed to projects in the CALFED solution area (92%). We anticipate that the Prop 50 funding will support a similar percentage of projects in the CALFED solution area.

Source Improvement

Delta Improvements Package

Operational Improvements/ Recirculation in the San Joaquin River – Contingent upon funding being identified, USBR will conduct sediment sampling, economic analysis, legal analysis, additional fisheries study, public involvement, and final documentation. (Element of San Joaquin River Salinity Management Plan)

Schedule: Completion 2007

Implementing Agencies: TBD

Funding: TBD

CBDA Program Lead: TBD

DWR Agricultural Drainage Program: DWR will continue its drainage program including management and coordination, monitoring and evaluation, on-farm drainage reduction, treatment, integrated drainage management and environmental investigations. DWR will also manage Proposition 204 Drainage Reuse Sub-account projects.

Schedule: Ongoing

Implementing Agencies: DWR

Funding: Funded through 2006. Beyond 2006 if funding available

CBDA Program Lead: Drinking Water Quality Program.

Franks Tract: Develop a strategy to significantly reduce salinity levels at the Delta drinking water intakes and improve water supply reliability by reconfiguring levees and/or Delta circulation patterns around Franks Tract.

Schedule: Complete environmental documents in 2006

Implementing Agencies: DWR

Funding: Feasibility study funded. Potential Prop 50 funding: Ch 4(a)(4), Ch 5(a)(3) and(5)

CBDA Program Lead: Conveyance, with coordination of Drinking Water Quality Program and Ecosystem Restoration Program

Delta Cross Channel Program: Evaluate Delta Cross Channel gate operational strategies to improve central and south Delta water quality while improving fish passage through the Delta.

Schedule: Recommendations Report in Fall 2005.

Implementing Agencies: USBR

Funding: Funded

CBDA Program Lead: Conveyance

Through Delta Facility: Complete feasibility studies on 4000 cfs diversion facility in the north Delta to assess its potential benefits and impacts on water quality, water supply, and environmental conditions in the Delta. Per the ROD, this action will only be implemented if water quality is not improved by other actions, and if there are no negative fishery impacts.

Schedule: Recommendations Report in Fall 2005

Implementing Agencies: DWR

Funding: Funded through Recommendations Report

CBDA Program Lead: Conveyance

Old River and Rock Slough Water Quality Improvement Projects: Relocate agricultural drains in Old River and Rock Slough to improve water quality at Contra Costa Water District intakes.

Schedule: June 2006 scheduled completion

Implementing Agencies: DWR

Funding: Funded up to construction. Potential construction funding: Ch 4(a)(4), Ch 5(a)(5), Ch 8(d)

CBDA Program Lead: Conveyance, with coordination of Drinking Water Quality Program

Salinity TMDL for the Lower San Joaquin River: This is part of the ROD commitment to address drainage problems in the San Joaquin Valley to improve downstream water quality. ROD milestone date was 12/2001. Completion has been delayed due to staffing constraints and implementation issues. Phase 1 will address Vernalis objectives. Phase 2 to address upstream objectives.

Schedule: Adoption of Phase 1 TMDL implementation plan scheduled for September 2004.

Implementing Agencies: RWQCB

Funding: Funded.

CBDA Program Lead: None, coordination with Drinking Water Quality Program

Intake Relocation for In-Delta Municipal and Industrial (M&I) Users: If water quality improvements do not result from other DIP actions, it may be necessary to relocate Delta M&I intakes.

Schedule: Tied to Franks Tract and DIP Implementation

Implementing Agencies: TBD

Funding: TBD (Prop 50, other).

CBDA Program Lead: None identified yet

Other Drinking Water Quality Actions

Drinking Water Policy for the Delta and its Tributaries – Years 5-8 will be devoted to implementation of the policy work plan. The final product of the working group will be a comprehensive policy proposal that will be provided to the Regional Board for their regulatory adoption (likely in the form of a Basin Plan Amendment).

Schedule: Complete technical work in 2007, basin plan amendment in 2009

Implementing Agencies: SWRCB, USEPA

Funding: Technical work funded, basin plan amendment will require additional funding.

CBDA Program Lead: Drinking Water Quality Program

Best Management Practices (BMPs) for Nonpoint Sources – This includes projects to identify, develop, and implement management practices to reduce loads of drinking water pollutants of concern to the Delta and its tributaries. These projects are primarily funded through implementing agency grant solicitations. Efforts focus on the major types of nonpoint sources in the Delta watershed including irrigated agriculture, managed wetlands, livestock grazing, and urban runoff.

Schedule: Ongoing

Implementing Agencies: SWRCB, CDFA, NRCS

Funding: Identification and development under existing funding level. Implementation if full funding available. Available funding sources include Prop 50 Chapter 5 and the SWRCB Agricultural Water Quality Grant Program.

CBDA Program Lead: Drinking Water Quality Program

State Water Project Watershed Sanitary Survey – Future work includes an update report for 2006, as well as the development of modeling tools to track sources and loads of contaminants in the project. DWR lead.

Schedule: Completion 2007

Implementing Agencies: DWR

Funding: Currently funded.

CBDA Program Lead: None

Structural Changes to the California Aqueduct and Similar Conveyances – Part of the ROD commitment to control runoff into conveyances.

Schedule: Begin in 2005

Implementing Agencies: DWR

Funding: If full funding available.

CBDA Program Lead: Drinking Water Quality Program

San Joaquin Valley / Southern California Water Quality Exchanges – Both the Friant and Kings Partnerships are moving towards investigating specific projects that will facilitate water quality exchanges. In December 2003, Friant and Metropolitan Water District (MWD) approved a Phase 2 Workplan. Soon, MWD will be amending the existing Kings Workplan to address funding specific projects.

Schedule: Completion 2007

Implementing Agencies: DWR

Funding: : Funding available for planning studies and pilot projects (Prop 13).

CBDA Program Lead: Drinking Water Quality Program

Treatment Options

UV Light and Multiple Disinfectants Project (Bay Area Project– Bench-scale, pilot-scale and demonstration-scale testing of UV treatment and multiple disinfectants on Delta waters. (EPA grant)

Schedule: Completion 2006, may result in need for additional studies

Implementing Agencies: USEPA

Funding: Funded.

CBDA Program Lead: Drinking Water Quality Program

Monitoring and Assessment

Delta Improvements Package

Performance Evaluation and Monitoring Program: As part of the DIP, a Program will be developed and implemented to evaluate the water quality and biological resource effects of the activities in the DIP. As necessary, corrective actions will be identified.

Schedule: TBD

Implementing Agencies: TBD

Funding: TBD

CBDA Program Lead: TBD (Drinking Water Quality Program)

Other Drinking Water Quality Actions

CALFED Monitoring and Assessment Program (MAP): Development and implementation of a monitoring and assessment program will be a high priority for Years 5 – Year 8. A workplan will be developed in Year 5. The program will coordinate with the Drinking Water Policy technical work, the SWRCB Surface Water Ambient Monitoring Program (SWAMP) and other monitoring programs to obtain data on drinking water quality constituents of concern.

Schedule: . Initiate in 2005.

Implementing Agencies: CBDA, DWR, SWRCB, USEPA, DHS

Funding: Needed (I'm keeping this separate from Drinking Water Policy).

CBDA Program Lead: Drinking Water Quality Program

Performance Measures – A workgroup consisting of implementing agency staff and stakeholders will be reconvened in Year 5, following development of the strategic plan, to develop program performance measures.

Schedule: Ongoing (was put on hold to allow strategic plan development to determine focus).

Implementing Agencies: CBDA, DWR, SWRCB, USEPA, DHS

Funding: Partial funding through June 2005. Additional funding and staff needed.

CBDA Program Lead: Drinking Water Quality Program

Regional Planning

Bay Area Water Quality and Supply Reliability Program – Phase 2 includes completion of the analysis and evaluation of those results to identify alternatives or portfolios that group a variety of alternatives together that meet the objectives of the various Bay Area agencies. As Phase 2 nears completion, the Bay Area water districts involved in the project will need to work closely with other Bay Area stakeholders and state and federal agencies to determine how to proceed with Phase 3, environmental review, feasibility, and design.

Schedule: Phase 2 completion end of 2004

Implementing Agencies: CBDA, DWR

Funding: Phase 2 funded. Phase 3 is implementation of identified projects.

CBDA Program Lead: Drinking Water Quality Program

Support Regional Planning – The program released a Request for Proposals for regional drinking water quality planning projects in May 2004. These projects will be awarded in Year 4 and completed in Year 5. The regional planning approach will continue to be refined through implementation of pilot projects. The DWQP through its implementing agencies will support regional and local drinking water quality planning efforts. Actions to improve local source water quality will be supported through competitive grant programs managed by the implementing and participating agencies.

Schedule: Ongoing

Implementing Agencies: CBDA, DWR, SWRCB, USEPA, DHS

Funding: Year 5, under existing funding, beyond year 5 if funding available.

CBDA Program Lead: Drinking Water Quality Program

Program Management

Drinking Water Quality Science Integration – Work with the Drinking Water Subcommittee, Science Program, and the CBDA Science Board to identify key science questions. Then seek to answer these questions through the appropriate use of scientific experts, directed studies, grants, workshops, and peer review.

Schedule: Ongoing

Implementing Agencies: CBDA, DWR, SWRCB, USEPA, DHS

Funding: Not funded.

CBDA Program Lead: Drinking Water Quality Program, with Coordination of Science Program

Support for the Drinking Water Subcommittee – The Drinking Water Subcommittee provides stakeholder input to the program. The DWS will continue to work with the Drinking Water Quality Program to develop the program strategy, identify stakeholder needs, and assess progress.

Schedule: Ongoing

Implementing Agencies: CBDA

Funding: Funded through May 2005.

CBDA Program Lead: Drinking Water Quality Program

Coordinate with Conveyance Projects: The DWQP will continue to coordinate with and support analysis of conveyance projects in order to fully understand water quality benefits and cost-effectiveness of potential actions including the South Delta Program, Through-Delta Facility/Delta Cross Channel Operations, and flooded island studies.

Schedule: Tied to Franks Tract and DIP implementation

Implementing Agencies: To be determined

Funding: To be determined; potentially Prop 50.

CBDA Program Lead: Drinking Water Quality Program, Conveyance Program

Coordinate with Storage Projects: The DWQP will continue to coordinate with storage projects in order to fully understand water quality benefits and cost-effectiveness of potential Storage actions including North of Delta Off-Stream Storage, Los Vaqueros Reservoir Expansion, and In-Delta Storage.

Schedule: Ongoing

Implementing Agencies: SWRCB, USEPA, CBDA

Funding: Staff and additional funding needed.

CBDA Program Lead: Drinking Water Quality Program, Storage Program

Potential Funding Programs

Prop 50 Drinking Water Source Protection Grants: DHS grant programs established under Prop 50 Chapter 4(a)(4) and (b); SWRCB grant programs established under Prop 50 Chapter 5(a)(5). Grants are awarded through a competitive process.

Schedule: Years 5 – 9

Implementing Agencies: SWRCB, DHS

SWRCB Agricultural Water Quality Grant Program – The SWRCB is developing guidelines for a grants program to address agricultural water quality issues. The program includes funding from Prop 50, Prop 40, and other sources.

Schedule: RFP Summer 2004

Prop 50 Drinking Water Treatment Grants – Chapter 4(a)(1), (2) & (5) and 4(b); Chapter 6(b)&(c).

Schedule: Years 5 – 9

Implementing Agencies: DHS

Prop 50 Drinking Water Monitoring Grants – Chapter 4(a)(1) & (3) and 4(b).

Schedule: Years 5 – 9

Implementing Agencies: DHS

SWRCB Prop 50 Grants – The SWRCB is planning the next round of Prop 50 Chapter 5 grants to start in late 2004.

Schedule: RFP late 2004

Implementing Agencies: SWRCB

DHS Prop 50 Grants – DHS is planning to start the first round of grant funding for Prop 50 Chapters 3, 4, and 6 also in late 2004. Criteria and process are currently under development. DHS will be implementing nine new grant programs with a total of ~\$400M which will be distributed over four years through a competitive process. The grant programs address water system security, monitoring, source protection, treatment, distribution infrastructure, and reducing demand on Colorado River water use.

Schedule: RFP late 2004

Implementing Agencies: DHS

SWRCB and DWR Prop 50 Grants for Integrated Regional Water Management projects – The SWRCB and DWR have initiated a coordinated process for grants from Prop 50 Ch. 8.

Schedule: RFP in late 2004

Implementing Agencies: DHS, SWRCB

Integrating Science, Environmental Justice and Tribal Relations

Science:

The DWQP will work with the Science Program and the Drinking Water Subcommittee to develop Performance Measures and appropriate management questions for an independent expert review in 2004. The program will seek to address the findings of this effort through the appropriate use of scientific experts, directed studies, grants, workshops, and peer review.

The DWQP will also work with the Science Program to develop a Monitoring and Assessment Program work plan in Year 5.

Performance Measures

Performance measures translate program goals and objectives into measurable benchmarks of success. Performance measures range from relatively simple metrics to complex cross program assessments. As such, current work on Performance Measures includes counting the simple metrics and laying the technical and scientific groundwork that will allow us to perform more complex assessments later.

The Science Program and the Drinking Water Quality Program have been continuously working to design performance measures for the program. The Science Program has articulated the following three levels of Performance Measures. These will be refined as they are tailored for the unique needs of each program. For Drinking Water Quality, examples of performance measures include:

- Level 1: Simple administrative measures. Site-specific indicators that track direct responses of specific projects or groups of projects (such as number of dollars spent and the number of projects funded).
- Level 2: Quantifiable accomplishments directly related to program actions. Indicators that track the responses of groups of projects on a local or regional level (such as acre feet of conserved or storage water, miles improved levees, or fish counts).
- Level 3: System-wide indicators. Indicators that track broad, often complex, responses of groups of projects (such as water supply reliability or ecosystem health).

Because Level 3 measures gauge the combined effects of several Program Elements, the Program will contribute to the Science Programs ongoing work in this area.

The Program is tracking Level 1 indicators of project expenditure, number and types of projects. The Program has established Level 2 indicators for TOC and bromide in exported water; has drafted a list of candidate indicators; and plans to develop more indicators as resources and data allow.

The DWQP has convened a group of stakeholders to work on the development of Performance Measures for the program. This work will be influenced by the strategic plan, which is currently in progress.

Environmental Justice:

The DWQP and DWS is committed to working with the Environmental Justice Program and Subcommittee to determine and address environmental justice issues related to drinking water quality. Actions, performance measures and targets will be developed in Year 5.

Tribal Relations:

Drinking water quality issues are important to many tribes and tribal relations are an important part of the DWQP. DWQP grants to other parties may affect tribal interests and tribes may need direct assistance to address water quality problems. Projects funded through the implementing agency grant programs are required to identify potential tribal issues and address them in their projects. The DWQP participates in tribal workshops to help identify drinking water quality issues of concern to tribes.

In addition, the program has identified the following opportunities for expanding tribal participation:

- Consider Tribal Water Programs – The majority of California tribes have developed USEPA Tribal Environmental Programs that have extensive water protection and water quality elements that need to be taken into consideration during drinking water project planning and implementation. Many tribes have their own USEPA approved water quality standards. The upstream and downstream impacts/benefits of these standards need to be considered. This may include working with Indian Health Services and the BIA Natural Resource Agencies.
- Involve the Bureau of Indian Affairs (BIA) – Although the BIA is not a CALFED member agency, it is the lead federal agency for the protection of Indian Trust Assets (ITAs). The BIA reviews environmental compliance documents for CALFED projects impacting ITAs.
- Notify Tribes of Grant Opportunities – Tribal governments should be notified when there are opportunities for drinking water quality improvement grants.
- Education and Outreach --Tribes should be included in drinking water quality education and outreach programs.

Cross-Program Relationships

Conveyance Program – DWQP has contributed resources to the modeling of how water moves through the Delta, operations of the Delta Cross Channel to move high quality Sacramento River water to central Delta channels and the export pumps and studies of the proposed screened diversion facility on the Sacramento upstream of the Delta Cross Channel. Integration with this program is critical to the success of the DWQP.

Ecosystem Restoration Program – ERP and DWQP water quality problems are frequently associated with the same sources indicating the need for cooperative monitoring and source improvement strategies. Frank's Tract restoration will be a focal point for cross-program activities.

Watershed Management – The Watershed Program and DWQP work cooperatively on grant funding processes and have overlapping program objectives. Building local capacity for watershed management activities provides the mechanism for identifying, guiding, and implementing drinking water quality improvement projects. The Watershed and Drinking Water Quality Programs, working with the SWRCB, have coordinated their grant funding processes.

Water Use Efficiency – An important element of the WUE program is promotion of good water measurement and management by agricultural users. Reducing agricultural water use reduces the loads of drinking water pollutants of concern in drainage, tail water, and runoff. Urban water use efficiency likewise contributes to improved drinking water quality by reducing demand, urban runoff, and wastewater loads, and creating potential opportunities for water quality blending and exchange programs. Water Use Efficiency is identified as an important element in the ELPH diagram.

Levee System Integrity Program – The Delta levee system provides important protection against salinity intrusion, therefore, the DWQP recognizes the significant influence the progress and success that the LSIP will have on protecting the quality of Delta water supplies.

Storage Program – DWQP is coordinating with the Storage Program since storage projects can have positive or negative effects on Delta Water Quality. The construction of the major dams of both the State and federal water projects greatly reduced seasonal fluctuations in Delta salinity. Additional storage north of the Delta could be operated to provide water quality benefits. On the other hand, feasibility studies of the proposed In-Delta Storage project show that it could increase loadings of some pollutants. Integration with this program is critical to the success of the DWQP.

Funding

| Drinking Water Quality ¹ | | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | Yr 6 | Yr 7 | Yr 8 | Subtotal Years 5-8 | Grand Total |
|--|--------------------|---------------|---------------|----------------|----------------|----------------|----------------|---------------|---------------|--------------------|----------------|
| State ² | CBDA | \$13.5 | \$0.8 | \$1.7 | \$0.4 | \$0.15 | \$0.15 | \$0.15 | \$0.15 | \$0.6 | \$17.0 |
| | DWR | \$24.4 | \$0.2 | \$0.1 | \$1.8 | 2.00 | 0.91 | 0.24 | 0.24 | \$3.4 | \$29.9 |
| | SWRCB ³ | | \$7.7 | \$13.4 | \$21.9 | 0.54 | 0.12 | 0.12 | 0.12 | \$0.9 | \$43.9 |
| | DHS ³ | | | | | | | | | | \$0.0 |
| | State Total | \$37.9 | \$8.7 | \$15.2 | \$24.1 | \$2.7 | \$1.2 | \$0.5 | \$0.5 | \$4.9 | \$90.8 |
| Federal ⁴ | \$1.9 | \$0.5 | | | | | | | | | \$2.4 |
| Local ⁵ | \$0.5 | \$0.8 | \$4.5 | | | | | | | | \$5.8 |
| Available Funding Total | \$40.4 | \$9.9 | \$19.8 | \$24.1 | \$2.7 | \$1.2 | \$0.5 | \$0.5 | \$0.5 | \$4.9 | \$99.1 |
| Past Funding & Projected Funding Needs ⁶ | \$40.4 | \$9.9 | \$19.8 | \$24.1 | \$14.1 | \$23.6 | \$30.1 | \$23.4 | \$23.4 | \$91.1 | \$185.3 |
| Unmet Needs ⁷ | | | | | \$11.4 | \$22.4 | \$29.6 | \$22.9 | | \$86.3 | |
| Original ROD Estimate (Aug, 2000) ⁸ | \$41.0 | \$78.0 | \$82.0 | \$110.0 | \$116.0 | \$120.0 | \$128.0 | | | | \$675.0 |

NOTES:

- Funding for Years 1 - 3 reflect actual State, Federal and Local obligations, commitments, encumbrances and expenditures updated to reflect actual fund amounts for each task. State funds for Years 4 & 5 reflect the Governor's Budget/May Revision. Federal funds are the Year 4 enacted and President's FY 2005 proposed budget. Projected funding shown in Years 6 - 8 includes remaining estimates for State bond funds, ongoing State base funding, and local matching to grants for years where bond funding is available. Federal appropriations beyond Year 5 are unknown.
- The State budget includes funding for the California Bay-Delta Authority (Authority), Department of Water Resources (DWR), and the State Water Resources Control Board (SWRCB).
- Funding for Years 1-4 includes funding from the General Fund, Prop 13, and Prop 50. Funding currently allocated for the DWQP for Years 5-8 includes only General Fund and Prop 13.
- The Federal budget includes grant matching funds from federal funding sources.
- Local funding includes local grant matching funds which are estimated and updated as information becomes available.
- Values for Years 1-4 indicate past funding. Values for Years 5-8 indicate total funding need (see "Estimated Program Needs" table).
- Unmet need is the difference between Projected Funding Needs and Available Funding for Years 5-8 and totals \$86.3 million. Although much of this need will be met through grant programs such as those funded by Prop 50, the exact amount will not be known until after grants are awarded through competitive processes. Potential Prop 50 funding includes approximately \$430 million in Chapters 4 and 6, \$72 million remaining in Chapter 5, and \$500 million in Chapter 8.
- Original ROD Estimate represents the original Stage 1 (Years 1-7) funding estimates from the Record of Decision (Aug 2000).

Funding by Task

| Drinking Water Quality ¹ (\$ in millions) | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | Yr 6 | Yr 7 | Yr 8 | Subtotal Years 5-8 | Grand Total |
|--|---------------|---------------|---------------|----------------|----------------|----------------|----------------|--------------|-----------------------|----------------|
| 1) Source Improvement | \$33.2 | \$9.6 | \$19.2 | \$23.6 | \$2.5 | \$1.0 | \$0.3 | \$0.3 | \$4.1 | \$89.7 |
| <i>Delta Improvements Package (Included in Source Improvement)</i> | | | | | | | | | | |
| 2) Treatment | \$5.7 | | | | | | | | | \$5.7 |
| 3) Monitoring and Assessment | | | | | | | | | | |
| 4) Regional ELPH Planning | | | | | | | | | | |
| 5) Program Management | \$1.5 | \$0.3 | \$0.6 | \$0.4 | \$0.2 | \$0.2 | \$0.2 | \$0.2 | \$0.8 | \$3.6 |
| Available Funding Total | \$40.4 | \$9.9 | \$19.8 | \$24.0 | \$2.7 | \$1.2 | \$0.5 | \$0.5 | \$4.9 | \$99.1 |
| Past Funding & Projected Funding Needs ² | \$40.4 | \$9.9 | \$19.8 | 24.1 | 14.1 | 23.6 | 30.1 | 23.4 | \$91.1 | \$185.3 |
| Unmet Needs ³ | | | | | 11.4 | 22.4 | 29.6 | 22.9 | \$86.2 | |
| Original ROD Estimate (Aug, 2000) ⁴ | \$41.0 | \$78.0 | \$82.0 | \$110.0 | \$116.0 | \$120.0 | \$128.0 | | | \$675.0 |

NOTES:

- Funding for Years 1 - 3 reflect actual State, Federal and Local obligations, commitments, encumbrances and expenditures updated to reflect actual fund amounts for each task. State funds for Years 4 & 5 reflect the Governor's Budget May Revision. Federal funds are the Year 4 enacted and President's FY 2005 proposed budget. Projected funding shown in Years 6 - 8 includes remaining estimates for State bond funds, ongoing State base funding, and local matching to grants for years where bond funding is available. Federal appropriations beyond Year 5 are unknown.
- Values for Years 1-4 indicate past funding. Values for Years 5-8 indicate total funding need (see "Estimated Program Needs" table).
- Unmet need is the difference between Projected Funding Needs and Available Funding for Years 5-8 and totals \$86.2 million. Although much of this need will be met through grant programs such as those funded by Prop 50, the exact amount will not be known until after grants are awarded through competitive processes. Potential Prop 50 funding includes approximately \$430 million in Chapters 4 and 6, \$72 million remaining in Chapter 5, and \$500 million in Chapter 8.
- Original ROD Estimate represents the original Stage 1 (Years 1-7) funding estimates from the Record of Decision (Aug 2000).

Estimate of Program Needs

| Drinking Water Quality ¹ (\$ in millions) | Yr 5 | Yr 6 | Yr 7 | Yr 8 | Grand Total |
|---|-------------|-------------|-------------|-------------|--------------------|
| 1) Source Improvement | \$13.00 | \$22.34 | \$22.27 | \$17.00 | \$74.61 |
| <i>Delta Improvements Package (included in Source Improvement)</i> | \$1.00 | \$10.34 | \$10.27 | \$5.00 | \$26.61 |
| 2) Treatment | \$0.01 | \$0.01 | \$4.59 | \$4.26 | \$8.87 |
| 3) Monitoring and Assessment | \$0.28 | \$0.28 | \$0.84 | \$1.28 | \$2.68 |
| 4) Regional ELPH Planning | \$0.20 | \$0.20 | \$1.70 | \$0.20 | \$2.30 |
| 5) Program Management | \$0.62 | \$0.72 | \$0.67 | \$0.67 | \$2.68 |
| Projected Needs Estimate | \$14.11 | \$23.55 | \$30.07 | \$23.41 | \$91.14 |
| NOTES: | | | | | |
| 1. Current estimates of projected funding needs for the Drinking Water Quality Program. | | | | | |

Geographical Distribution of Activities

